Clean Version of Abstract

ABSTRACT

An electronic book comprises an electronic central unit which includes a memory and which is connected to a display screen and to a control interface. The memory of the central unit contains at least one document comprising alphanumeric characters and prepositioned page break markers which serve to paginate the document as a function of the characteristics of the screen or as a function of a character style selected by the user.

JC14 Rec'd PCT/PTO 19 OCT 2001

FORM PTO-1390 (REV. 9-2001) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY 'S DOCKET NUMBER: 28944/40013

U.S. APPLICATION NO. (If known, see 37 CFR 1.5): 10/030869

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR00/00989	17 April 2000	20 April 1999 and 9 July 1999

TITLE OF INVENTION: An Electronic Appliance, a Data Medium, a Downloading Method, Software, and a Method for Displaying Documents

APPLICANT(S) FOR DO/EO/US: Michael DAHAN, Olivier PUJOL and Jacques LEWINER

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☑ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☑ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☑ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☑ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☑ is attached hereto (required only if not communicated by the International Bureau).
   b. ☑ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☑ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. ☑ is attached hereto.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Aplication under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English lanugage translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☑ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☐ Other items or information:

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U.S. APPLICATION NO (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
10/030869	PCT/FR00/00989	28944/40013

21. ☑ The following fees are submitted:	CALCULATIONS PTO USE ONLY	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1040.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$890.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$740.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$710.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 890.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	25 - 20 =	5	x **$18.00**	$ 90.00	
Independent claims	1 - 3 =	0	x **$84.00**	$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$280.00**	$	
TOTAL OF ABOVE CALCULATIONS =				$	
☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2. +				$	
SUBTOTAL =				$ 980.00	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				$	
TOTAL NATIONAL FEE =				$ 980.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$	
TOTAL FEES ENCLOSED =				$ 980.00	
				Amount to be refunded:	$
				charged:	$

a. ☑ A check in the amount of $ 980.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-1093 . A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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30,195

REGISTRATION NUMBER

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PATENT
28944/40013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Dahan et al.

Serial No.:

Filed: Herewith

For: An Electronic Appliance, a Data Medium, a Downloading Method, Software, and a Method for Displaying Documents

CERTIFICATE OF MAILING BY EXPRESS

"EXPRESS MAIL" mailing label No. EL 906957810 US
Date of Deposit: October 19, 2001

I hereby certify that these papers (and fee) are being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Box PCT, Washington, D.C. 20231

By: Janet P. Habina
Printed Name: Janet P. Habina

PRELIMINARY AMENDMENT

Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

Sir:

Preliminary to examination on the merits, please amend the above-identified application as follows:

In the Specification:

At page 1, after the title, insert at line 3, the heading "Field of the Invention";

At page 1, after line 6, insert the heading "Background of the Invention";

At page 1, after line 17, insert the heading "Objects and Summary of the Invention".

In the Claims and Abstract:

Please amend claims 1, 2, 4-8, 10-13, 15, 16, 18-25 and the Abstract as follows:

Clean Version of Claims

1. (Amended) An electronic document display appliance comprising an electronic central unit including a memory and connected to a display screen and to a control interface, the memory of the central unit containing at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen,

wherein the document contains pagination markers that are not visible on the screen, each marker comprising at least one identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes comprised in the various pagination markers corresponding to a plurality of display configurations, themselves corresponding to a plurality of paginations on the screen;

wherein the memory contains at least one identity code corresponding to an active display configuration with which the document is to be presented on the screen; and

wherein the electronic central unit is adapted to paginate the document using the pagination markers which correspond to the active display configuration and to present the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of said pages appears in full on the screen when it is displayed with the active display configuration.

2. (Amended) An appliance according to claim 1, in which the memory contains characteristic data defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface being adapted to enable a user to select one character style from the various possible styles, said character styles being subdivided into a plurality of groups of character styles, each comprising:

- either a single character style; or else
- a plurality of character styles of similar sizes;

the display configuration which corresponds to each pagination marker comprising at least one group of character styles, and the identity code of the active display configuration corresponding at least to an "active" group of character styles to which the character style selected by the user belongs.

3. An appliance according to claim 2, in which each page break marker includes a code which represents a page number and, when said page break marker corresponds to the active group, the page number corresponds:

- either to the page situated immediately ahead of the page break marker;
- or else to the page situated immediately after the page break marker.

4. (Amended) An appliance according to claim 2, in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group.

5. (Amended) An appliance according to claim 2, in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group, and after the size of each page has been adapted by scaling with a scale factor that is specific to each character style, with the central unit being designed to adapt the size of each page while displaying said page on the screen by applying scaling to said page with said scale factor.

6. (Amended) An appliance according to claim 5, in which the central unit is adapted to determine a scale factor automatically that is suitable for a page and a character style while said page is being displayed with the character style in question.

7. (Amended) An appliance according to claim 2, in which, when the user selects a new character style after an initial page has already been displayed on the screen prior to repagination, the central unit is adapted to display a new page on the screen, the new page comprising at least a portion of the initial page.

8. (Amended) An appliance according to claim 7, in which the central unit is adapted to receive from the user, via the control interface, information for determining said portion of

the initial page which is to be included in the new page displayed on the screen after the document has been repaginated.

9. An appliance according to claim 7, in which said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated is a predetermined portion of said initial page.

10. (Amended) An appliance according to claim 7, in which the central unit is adapted to present at least one visible signal highlighting said portion of the initial page which is included in the new page displayed on the screen after the document has been repaginated.

11. (Amended) An appliance according to claim 2, in which the central unit is adapted to store the character style most recently selected by the user in a non-volatile internal memory.

12. (Amended) An appliance according to claim 2, in which the central unit is adapted to present indications on the screen relating to an original pagination, corresponding to a predetermined character style, regardless of the character style selected by the user.

13. (Amended) An appliance according to claim 1, in which the document further comprises illustration markers corresponding to illustrations inserted in the text, said illustration markers being invisible on the screen and each comprising:

- at least one identity code corresponding to a display configuration;
- at least one code representative of the corresponding illustration; and
- coded position and/or size information;

the electronic central unit being adapted to present the document on the screen with each illustration positioned and/or dimensioned on the corresponding page as a function of said coded position and/or size information contained in the illustration marker for said illustration that corresponds to the active configuration.

14. An appliance according to claim 13, in which the illustration markers further comprise coded information concerning the visible presentation of illustrations, said coded

information being representative of optical characteristics of each point forming part of the illustration.

15. (Amended) An appliance according to claim 1, constituting an electronic book which is in the form of a portable housing.

16. (Amended) An appliance according to claim 1, in which the identity code for each displayed configuration corresponds to at least one screen characteristic specific to the display screen.

17. An appliance according to claim 16, in which said screen characteristic is a screen size.

18. (Amended) An appliance according to claim 16, in which the memory contains characteristics defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface being adapted to enable a user to select a character style from the various possible styles, said character styles being grouped together in a plurality of character style groups, each comprising:

- either a single character style;
- or else a plurality of character styles of similar sizes;

each display configuration corresponding to a combination of at least one screen characteristic and at least one character style group,

and the identity code of the active display configuration corresponding to combining:

- the screen characteristic corresponding to the display screen of the appliance; and
- the character style group to which the character style selected by the user belongs.

19. (Amended) A data medium for an electronic document display appliance according to claim 1, the appliance comprising an interface suitable for communicating with said data medium, said data medium storing in memory at least one document in digital form which is to be presented on the screen of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which

themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

20. (Amended) A downloading method comprising at least one step consisting in downloading into the memory of an electronic document display appliance according to claim 1, at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a group of character styles, the pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

21. (Amended) Software comprising at least one data file loadable into the memory of a document display appliance according to claim 1, said data file comprising a document in digital form which is to be presented on the screen of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

22. (Amended) A method of displaying a document stored in digital form by means of an electronic document display appliance according to claim 1, the appliance comprising an electronic central unit including a memory and connected to a display screen and to a control interface, which document is to be presented on the screen and comprises alphanumeric characters, and said document being constituted for the most part by information that is frozen, said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes taken by the various pagination markers corresponding to a plurality of display

configurations themselves corresponding to a plurality of paginations on the screen, the method comprising the following steps:

a) determining the identity code of an active display configuration, with which the document is to be presented on the screen; and

b) paginating the document using the pagination markers having an identity code which corresponds to the identity code of the active display configuration and presenting the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of the pages is visible in full on the screen while it is being displayed with the active display configuration.

23. (Amended) A method according to claim 22, in which the various display configurations comprise a plurality of character styles grouped together in a plurality of character style groups, each group comprising at least one character style, step a) comprising the following substeps:

- selecting a character style;
- determining an identity code corresponding to the group of character styles to which the selected character style belongs; and
- storing said identity code in the memory as the identity code of the active display configuration.

24. (Amended) A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics, step a) comprising the following substeps:

- determining an identity code relating to the screen characteristic corresponding to the display screen of the electronic document display appliance; and
- storing said identity code in the memory as the identity code of the active display configuration.

25. (Amended) A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics and to a plurality of character styles grouped together in a plurality of character style groups each comprising at least one character style, step a) comprising the following substeps:

- determining a first identity code relating to the screen characteristic which corresponds to the display screen of the electronic document display appliance;

- storing the identity code corresponding to said screen characteristic in the memory ;

- selecting a character style;

- determining a second identity code corresponding to the character style group to which the selected character style belongs;

- storing said second identity code in the memory ; and

- determining an identity code for the active display configuration that corresponds to said first and second identity codes, and storing it in the memory.

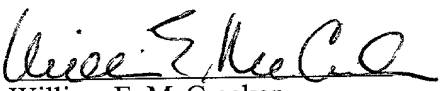
Remarks

Claims 1, 2, 4-8, 10-13, 15, 16, 18-25 and the abstract have been amended to eliminate reference numerals and letters therefrom and claims 4, 5, 7, 10-13, 15, 16 and 18-22 have been further amended to eliminate multiple dependencies. None of the claims has been narrowed by this amendment. The specification has also been amended to include headings.

Attached hereto as pages 11-18 is a marked-up version of the changes made to the claims and abstract by the current amendment.

Respectfully submitted,

Law Offices of
William E. McCracken and Associates

By: 
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Version with Markings to Show Changes Made

Claims 1, 2, 4-8, 10-13, 15, 16 and 18-25 and the Abstract have been amended as follows:

1. (Amended) An electronic document display appliance comprising an electronic central unit [(5)] including a memory [(7, 8)] and connected to a display screen [(3)] and to a control interface [(4)], the memory [(7, 9)] of the central unit containing at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen,

wherein [the appliance **being characterized in that**] the document contains pagination markers that are not visible on the screen, each marker comprising at least one identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes comprised in the various pagination markers corresponding to a plurality of display configurations, themselves corresponding to a plurality of paginations on the screen;

wherein [**in that**] the memory [(7, 9)] contains at least one identity code corresponding to an active display configuration with which the document is to be presented on the screen; and

wherein [**in that**] the electronic central unit [(5)] is adapted to paginate the document using the pagination markers which correspond to the active display configuration and to present the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of said pages appears in full on the screen when it is displayed with the active display configuration.

2. (Amended) An appliance according to claim 1, in which the memory [(7, 9)] contains characteristic data defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface [(4)] being adapted to enable a user to select one character style from the various possible styles, said character styles being subdivided into a plurality of groups of character styles, each comprising:

- either a single character style; or else

- a plurality of character styles of similar sizes;

the display configuration which corresponds to each pagination marker comprising at least one group of character styles, and the identity code of the active display configuration corresponding at least to an "active" group of character styles to which the character style selected by the user belongs.

3. An appliance according to claim 2, in which each page break marker includes a code which represents a page number and, when said page break marker corresponds to the active group, the page number corresponds:

- either to the page situated immediately ahead of the page break marker;
- or else to the page situated immediately after the page break marker.

4. (Amended) An appliance according to claim 2 [or claim 3], in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group.

5. (Amended) An appliance according to claim 2 [or claim 3], in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group, and after the size of each page has been adapted by scaling with a scale factor that is specific to each character style, with the central unit being designed to adapt the size of each page while displaying said page on the screen by applying scaling to said page with said scale factor.

6. (Amended) An appliance according to claim 5, in which the central unit [(5)] is adapted to determine a scale factor automatically that is suitable for a page and a character style while said page is being displayed with the character style in question.

7. (Amended) An appliance according to [any one of claims 2 to 6] claim 2, in which, when the user selects a new character style after an initial page has already been displayed on the screen prior to repagination, the central unit [(5)] is adapted to display a new page on the screen [(3)], the new page comprising at least a portion of the initial page.

8. (Amended) An appliance according to claim 7, in which the central unit [(5)] is adapted to receive from the user, via the control interface [(4)], information for determining said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated.

9. An appliance according to claim 7, in which said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated is a predetermined portion of said initial page.

10. (Amended) An appliance according to [any one of claims 7 to 9] claim 7, in which the central unit [(5)] is adapted to present at least one visible signal highlighting said portion of the initial page which is included in the new page displayed on the screen after the document has been repaginated.

11. (Amended) An appliance according to [any one of claims 2 to 10] claim 2, in which the central unit [(5)] is adapted to store the character style most recently selected by the user in a non-volatile internal memory [(7)].

12. (Amended) An appliance according to [any one of claims 2 to 10] claim 2, in which the central unit [(5)] is adapted to present indications on the screen [(3)] relating to an original pagination, corresponding to a predetermined character style, regardless of the character style selected by the user.

13. (Amended) An appliance according to [any preceding claim] claim 1, in which the document further comprises illustration markers corresponding to illustrations inserted in the text, said illustration markers being invisible on the screen and each comprising:

- at least one identity code corresponding to a display configuration;
- at least one code representative of the corresponding illustration; and
- coded position and/or size information;

the electronic central unit [(5)] being adapted to present the document on the screen [(3)] with each illustration positioned and/or dimensioned on the corresponding page as a

function of said coded position and/or size information contained in the illustration marker for said illustration that corresponds to the active configuration.

14. An appliance according to claim 13, in which the illustration markers further comprise coded information concerning the visible presentation of illustrations, said coded information being representative of optical characteristics of each point forming part of the illustration.

15. (Amended) An appliance according to [any preceding claim] claim 1, constituting an electronic book which is in the form of a portable housing [(2)].

16. (Amended) An appliance according to [any preceding] claim 1, in which the identity code for each displayed configuration corresponds to at least one screen characteristic specific to the display screen [(3)].

17. An appliance according to claim 16, in which said screen characteristic is a screen size.

18. (Amended) An appliance according to claim 16 [or claim 17], in which the memory [(7, 9)] contains characteristics defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface [(4)] being adapted to enable a user to select a character style from the various possible styles, said character styles being grouped together in a plurality of character style groups, each comprising:

- either a single character style;
- or else a plurality of character styles of similar sizes;

each display configuration corresponding to a combination of at least one screen characteristic and at least one character style group,

and the identity code of the active display configuration corresponding to combining:

- the screen characteristic corresponding to the display screen of the appliance; and
- the character style group to which the character style selected by the user belongs.

19. (Amended) A data medium for an electronic document display appliance according to [any preceding claim] claim 1, the appliance comprising an interface [(8)] suitable for communicating with said data medium [(9)], said data medium storing in memory at least one document in digital form which is to be presented on the screen [(3)] of the

electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

20. (Amended) A downloading method comprising at least one step consisting in downloading into the memory [(7, 9)] of an electronic document display appliance according to [any one of claims 1 to 18] claim 1, at least one document in digital form which is to be presented on the screen [(3)] and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a group of character styles, the pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

21. (Amended) Software comprising at least one data file loadable into the memory of a document display appliance according to [any one of claims 1 to 18] claim 1, said data file comprising a document in digital form which is to be presented on the screen [(3)] of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

22. (Amended) A method of displaying a document stored in digital form by means of an electronic document display appliance according to [any one of claims 1 to 18] claim 1, the appliance comprising an electronic central unit [(5)] including a memory [(7, 9)] and connected to a display screen [(3)] and to a control interface [(4)], which document is to be presented on the screen and comprises alphanumeric characters, and said document being constituted for the most part by information that is frozen, said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration representative of the way in which the

document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes taken by the various pagination markers corresponding to a plurality of display configurations themselves corresponding to a plurality of paginations on the screen, the method comprising the following steps:

a) determining the identity code of an active display configuration, with which the document is to be presented on the screen; and

b) paginating the document using the pagination markers having an identity code which corresponds to the identity code of the active display configuration and presenting the document on the screen [(3)] in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of the pages is visible in full on the screen while it is being displayed with the active display configuration.

23. (Amended) A method according to claim 22, in which the various display configurations comprise a plurality of character styles grouped together in a plurality of character style groups, each group comprising at least one character style, step a) comprising the following substeps:

- selecting a character style;
- determining an identity code corresponding to the group of character styles to which the selected character style belongs; and
- storing said identity code in the memory [(7, 9)] as the identity code of the active display configuration.

24. (Amended) A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics, step a) comprising the following substeps:

- determining an identity code relating to the screen characteristic corresponding to the display screen [(3)] of the electronic document display appliance; and
- storing said identity code in the memory [(7, 9)] as the identity code of the active display configuration.

25. (Amended) A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics and to a plurality of

character styles grouped together in a plurality of character style groups each comprising at least one character style, step a) comprising the following substeps:

- determining a first identity code relating to the screen characteristic which corresponds to the display screen [(3)] of the electronic document display appliance;

- storing the identity code corresponding to said screen characteristic in the memory [(7, 9)];

- selecting a character style;

- determining a second identity code corresponding to the character style group to which the selected character style belongs;

- storing said second identity code in the memory [(7, 9)]; and

- determining an identity code for the active display configuration that corresponds to said first and second identity codes, and storing it in the memory [(7, 9)].

ABSTRACT

An electronic book [(1)] comprises an electronic central unit which includes a memory and which is connected to a display screen [(3)] and to a control interface [(4)]. The memory of the central unit contains at least one document comprising alphanumeric characters and prepositioned page break markers which serve to paginate the document as a function of the characteristics of the screen or as a function of a character style selected by the user.

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AN ELECTRONIC APPLIANCE, A DATA MEDIUM, A DOWNLOADING METHOD, SOFTWARE, AND A METHOD FOR DISPLAYING DOCUMENTS

The present invention relates to electronic appliances, data media, downloading methods, software, and methods for displaying documents.

More particularly, the invention relates to an electronic document display appliance comprising an electronic central unit including a memory and connected to a display screen and to a control interface, the memory of the central unit containing at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen.

Document US-A-5 802 516 describes an example of an appliance of that type.

A particular object of the present invention is to enable a single document to be used easily in a plurality of display configurations, in particular:

- to enable the document to be adapted without difficulty and instantaneously to the characteristics of the screen being used, in particular during initial installation of the document in the electronic appliance; and

- to enable a user to adapt the character style shown on the screen, in particular as a function of the user's visual acuity or viewing comfort, which adjustment must be capable of being performed without requiring excessive computer processing time for determining new pagination for the document shown on the screen.

In conventional word processor software, when changing character font (when the software in question is used in the ordinary way for typing text into a microcomputer), repagination for the entire document is

recomputed progressively starting from the first page. That mode of operation is possible for short documents that are only a few pages long, but it is impractical because it is too slow for texts comprising several hundreds of pages of the kind commonly to be found in electronic books or similar document display appliances.

In addition, repagination computed automatically by conventional word processing software when changing character style is generally of poor quality compared with the pagination of a book that is printed on paper.

In particular, the positions of page breaks and of word hyphenations as determined in this way are generally unsatisfactory, as are the positions and the sizes of illustrations on each page (when the document in question has illustrations constituted by photographs, drawings, formulae, etc.).

To obtain the looked-for result, according to the invention an appliance of the kind in question is characterized:

- in that the document contains pagination markers that are not visible on the screen, each marker comprising at least one identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes comprised in the various pagination markers corresponding to a plurality of display configurations, themselves corresponding to a plurality of paginations on the screen;

- in that the memory contains at least one identity code corresponding to an active display configuration with which the document is to be presented on the screen; and

- in that the electronic central unit is adapted to paginate the document using the pagination markers which correspond to the active display configuration and to present the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of said pages appears in full on the screen when it is displayed with the active display configuration.

In a preferred embodiment, the memory contains characteristic data defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface being adapted to enable a user to select one character style from the various possible styles, said character styles being subdivided into a plurality of groups of character styles, each comprising:

- either a single character style; or else
- a plurality of character styles of similar sizes;

the display configuration which corresponds to each pagination marker comprising at least one group of character styles, and the identity code of the active display configuration corresponding at least to an "active" group of character styles to which the character style selected by the user belongs.

It should be observed that the various above-mentioned "character styles" can correspond respectively:

- to different character fonts;
- and/or to different character sizes;
- and/or to different character attributes such as bold, italic, etc.

In this embodiment, the user of the electronic book can select the character style to be shown on the screen,

after which the pagination on the screen is modified almost instantaneously without the electronic central unit needing to recalculate the positions of page breaks, since that operation would be extremely lengthy with a long document and would give rise to pagination of poor quality.

In other preferred embodiments of the invention, use may optionally be made of one or more of the following dispositions:

- each page break marker includes a code which represents a page number and, when said page break marker corresponds to the active group, the page number corresponds:
  . either to the page situated immediately ahead of the page break marker;
  . or else to the page situated immediately after the page break marker;

- at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group;

- at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of

character styles when said group of character styles is the active group, and after the size of each page has been adapted by scaling with a scale factor that is specific to each character style, with the central unit being designed to adapt the size of each page while displaying said page on the screen by applying scaling to said page with said scale factor;

- the central unit is adapted to determine a scale factor automatically that is suitable for a page and a character style while said page is being displayed with the character style in question;

- when the user selects a new character style after an initial page has already been displayed on the screen prior to repagination, the central unit is adapted to display a new page on the screen, the new page comprising at least a portion of the initial page;

- the central unit is adapted to receive from the user, via the control interface, information for determining said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated;

- said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated is a predetermined portion of said initial page;

- the central unit is adapted to present at least one visible signal highlighting said portion of the initial page which is included in the new page displayed on the screen after the document has been repaginated;

- the central unit is adapted to store the character style most recently selected by the user in a non-volatile internal memory;

- the central unit is adapted to present indications on the screen relating to an original pagination,

corresponding to a predetermined character style, regardless of the character style selected by the user;

- the document further comprises illustration markers corresponding to illustrations inserted in the text, said illustration markers being invisible on the screen and each comprising:

. at least one identity code corresponding to a display configuration;

. at least one code representative of the corresponding illustration; and

. coded position and/or size information;

the electronic central unit being adapted to present the document on the screen with each illustration positioned and/or dimensioned on the corresponding page as a function of said coded position and/or size information contained in the illustration marker for said illustration that corresponds to the active configuration;

- the illustration markers further comprise coded information concerning the visible presentation of illustrations, said coded information being representative of optical characteristics of each point forming part of the illustration;

- the appliance constitutes an electronic book which is in the form of a portable housing;

- the identity code for each displayed configuration corresponds to at least one screen characteristic specific to the display screen;

- said screen characteristic is a screen size; and

- the memory contains characteristics defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface being adapted to enable a user to select a character style from the various possible styles, said

character styles being grouped together in a plurality of character style groups, each comprising:

. either a single character style;

. or else a plurality of character styles of similar sizes;

each display configuration corresponding to a combination of at least one screen characteristic and at least one character style group, and the identity code of the active display configuration corresponding to combining the screen characteristic corresponding to the display screen of the appliance with the character style group to which the character style selected by the user belongs.

The invention also provides a data medium for an electronic appliance for displaying documents as defined above, the appliance comprising an interface suitable for communicating with said data medium, said data medium storing in memory at least one document in digital form which is to be presented on the screen of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

The invention also provides a downloading method comprising at least one step consisting in downloading into the memory of an electronic document display appliance, at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted

for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a group of character styles, the pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

The invention also provides software comprising at least one data file loadable into the memory of a document display appliance as defined above, said data file comprising a document in digital form which is to be presented on the screen of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

Finally, the invention also provides a method of displaying a document stored in digital form by means of an electronic document display appliance, the appliance comprising an electronic central unit including a memory and connected to a display screen and to a control interface, which document is to be presented on the screen and comprises alphanumeric characters, and said document being constituted for the most part by information that is frozen, said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding

to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes taken by the various pagination markers corresponding to a plurality of display configurations themselves corresponding to a plurality of paginations on the screen, the method comprising the following steps:

a) determining the identity code of an active display configuration, with which the document is to be presented on the screen; and

b) paginating the document using the pagination markers having an identity code which corresponds to the identity code of the active display configuration and presenting the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of the pages is visible in full on the screen while it is being displayed with the active display configuration.

In preferred implementations of this display method, use may optionally be made of one or more of the following dispositions:

- the various display configurations comprise a plurality of character styles grouped together in a plurality of character style groups, each group comprising at least one character style, step a) comprising the following substeps:

. selecting a character style;

. determining an identity code corresponding to the group of character styles to which the selected character style belongs; and

. storing said identity code in the memory as the identity code of the active display configuration;

- the various display configurations correspond to a plurality of screen characteristics, step a) comprising the following substeps:

. determining an identity code relating to the screen characteristic corresponding to the display screen of the electronic document display appliance; and

. storing said identity code in the memory as the identity code of the active display configuration; and

- the various display configurations correspond to a plurality of screen characteristics and to a plurality of character styles grouped together in a plurality of character style groups each comprising at least one character style, step a) comprising the following substeps:

. determining a first identity code relating to the screen characteristic which corresponds to the display screen of the electronic document display appliance;

. storing the identity code corresponding to said screen characteristic in the memory;

. selecting a character style;

. determining a second identity code corresponding to the character style group to which the selected character style belongs;

. storing said second identity code in the memory; and

. determining an identity code for the active display configuration that corresponds to said first and second identity codes, and storing it in the memory.

Other characteristics and advantages of the invention appear from the following description of an embodiment, given by way of non-limiting example, and described with reference to the accompanying drawing.

In the drawing:

- Figure 1 is a diagrammatic view of an electronic book constituting an embodiment of the invention; and

- Figure 2 is a fragmentary block diagram of the electronic book of Figure 1.

In the various figures, the same references are used to designate elements that are identical or similar.

Figure 1 shows an electronic appliance 1 for displaying documents, also known as an "electronic book", the appliance being in the form of a self-contained portable housing 2 whose front face is constituted for the most part by a display screen 3 associated with a control interface 4, specifically a simplified keypad.

By way of example, this simplified keypad can comprise four buttons:

- a first button 4a enabling a menu to be displayed on the screen;

- second and third buttons 4b and 4c in the form of arrows making it possible, for example, to select options in the menus that appear on the screen and, in ordinary use, serving to change the page shown on the screen; and

- a fourth button 4d serving to validate or "enter" options in the menus as selected by means of the arrows 4b, 4c.

Naturally, other control interfaces could be used, by replacing or complementing the simplified keypad 4, e.g. by voice control, track-ball control, touch-sensitive control, an "electronic sensor" having a tip whose position on the screen 3 can be identified by the electronic book, etc.

In addition, the housing 2 can advantageously include a reader 8 that is capable of reading an external data medium, for example a memory card complying with the PCMIA standard.

As shown very diagrammatically in Figure 2, the housing 2 contains an electronic central unit 5 which is

connected to the screen 3 and to the control interface 4 and which includes:

- logic processor means 6 such as at least one microprocessor MP;

- storage means (hereinafter referred to merely as the "memory" of the central unit) comprising at least:

. an internal memory (MEM); and

. advantageously a memory card 9 associated with the above-mentioned interface 8 (INT.), or any other external memory; and

. advantageously a communications interface 10 (COM.), e.g. a serial port or a parallel port, a wireless receiver, etc.

The internal memory 7 of the central unit or the memory card 9 contains at least one data file comprising a document in digital form (originally contained in the memory 7 or 9, or downloaded via the interface 10 from the Internet, by wireless, by infrared links, or by any other communication means) which document is subdivided into pages each intended to occupy the entire screen 3 when it is displayed, the document comprising:

- text, i.e. alphanumeric characters; and

- illustrations (photographs, drawings, tables, mathematical or chemical formulae, etc.) at least some of which are inserted in the text.

The information contained in the document is for the most part frozen and arranged in predetermined manner, with the exception of certain zones on each page, e.g. the margins or the headers and footers of the pages which can be annotated by the user if the control interface enables data to be input quite easily or when the electronic book can be connected by wire or by wireless link to an external appliance such as a microcomputer or merely a full keyboard.

Furthermore, and in conventional manner, the user can also place "bookmarks" at certain locations in the document enabling those locations to be found immediately when making subsequent use of the electronic book.

To enable the user of the electronic book 1 to adapt its display configuration, and in particular the character style presented on the screen (character font, character size within a given font, character attributes such as bold, italic, etc.), the memory 7 contains characteristics defining several possible character styles, corresponding to several different paginations on the screen.

These various character styles are grouped together in a certain number of groups, e.g. ten groups each comprising one or more character styles of similar size corresponding to pagination on the screen that is the same.

The user can select one character style from amongst the various styles possible by means of the control interface, e.g. by selecting and validating a character font together with its size and presentation attributes in a scrolling menu that is called up on the screen by using the buttons 4a-4d as explained above.

In addition, the document is provided in advance with page markers, in particular markers identifying prepositioned page breaks that are not visible on the screen, each of which comprises:

- an identity code corresponding to one of the groups of character styles; and
- a code representing page number, e.g. corresponding to the page situated immediately in front of the page break marker (or possibly to the page situated immediately after the page break marker), when the character style selected by the user belongs to the

"active" group of character styles corresponding to said page break marker.

Thus, when the user selects a new character style, the microprocessor 6:

- repaginates the document by using the page break markers that correspond to the active group; and

- presents the document on the screen 3 with the selected character style and with a page break for each page break marker corresponding to the active group, each page defined in this way then being adapted to be visible in full on the screen while it is being displayed.

This operation is almost instantaneous since the page break markers are positioned in the document in advance and since they already contain the page numbers that correspond to the various available paginations.

Furthermore, the new pagination of the document is well done since it is defined in advance by the publisher of the document and is not computed in purely automatic manner.

It will be observed that when a group of character styles includes a plurality of character styles of similar sizes, the page break markers corresponding to this character style group are positioned in the document so that the various pages of the document as defined by the page break markers are visible in full on the screen for all of the character styles belonging to said character style group, possibly after the size of each page has been modified by a small amount of scaling with a scale factor that is specific to each page and to each character style.

By way of example, this scale factor can lie in the range 0.95 to 1.05 and it is either predetermined and applicable to each character style, or else it is determined by the microprocessor 6 on displaying each

page so as to cause the page as displayed to correspond exactly to the size of the screen.

Furthermore, the document also includes, for each illustration, illustration markers that are not visible on the screen, each comprising:

- an identity code corresponding to one of the groups of character styles;
- a code representative of the corresponding illustration, for example a link code referring to a data file external to the document, said file containing the illustration; and
- coded information concerning position and/or size within a page, e.g. the abscissa and the ordinate of the points situated at the top left corner of the illustration and the size of the illustration in abscissa and ordinate terms (or a scale factor relative to an initial size) in a system of coordinates representing various possible positions on the page.

It should be observed that since the possible number of character styles is finite, the size of the illustration within the screen page can take on only a finite number of discrete values.

When the user selects a new character style, the microprocessor 6 presents each page of the document to the screen 3 with each illustration positioned and/or dimensioned on the corresponding page as a function of said encoded position and size information contained in the illustration marker of the illustration that corresponds to the group of characters to which the selected character style belongs.

Furthermore, the illustration markers can contain not only encoded position and/or size information, but also encoded information concerning the visual presentation of the illustration, e.g. relating to the color palette used, brightness, contrast, etc., or some

other optical characteristic of each point of the illustration, which parameters can, where appropriate, be influenced by the character style as selected by the user or possibly by an adjustment made available to the user.

It should be observed that the same illustration, i.e. the same image, can, where appropriate, be stored with different display characteristics (size, color, etc.) in a plurality of data files external to the document in question. Under such circumstances, the illustration markers corresponding to the same illustration will contain codes representative of said illustration that differ from one illustration marker to another, as a function of the corresponding group of character style.

Finally, when the user selects a new character style even though an initial page is already being displayed on the screen 3 prior to repagination, the microprocessor 6 displays a new page on the screen that contains at least a portion of the initial page: this can be a predetermined portion of the initial page, e.g. the beginning of the initial page, or it can be a portion of the initial page as specified by the user by means of the control interface (e.g. a particular word on the initial page).

Furthermore, said predetermined portion of the initial page or the portion of the initial page as determined by the user are preferably highlighted on the screen after repagination, e.g. by displaying a colored background over said portion of the page, or indeed by displaying a moving or other symbol.

Advantageously, the central unit 5 always retains in memory the original pagination of the document 16 as presented on the screen (i.e. the default pagination as initially selected by the publisher) and causes indications to be displayed on the screen 3, e.g. in the

margin of the document, enabling the portion of the text that is being displayed with the character style selected by the user to be identified in the original version of the document. For example, the central unit 5 can display in the margin of the document, in the position which corresponds to the beginning of each page in the original pagination:

- the page number in the original pagination; and
- where appropriate, a mark defining the beginning of said page, e.g. represented by a dashed line.

These dispositions make it possible for two users reading the same document but with different paginations on two different electronic books to refer conveniently to the same passage in the document.

The pagination markers do not necessarily comprise only page break markers, but can also include markers specifying line breaks, markers referring to another page in the document and enabling a reference to be displayed on the screen to said other page in the pagination that corresponds to the character style that has been selected by the user, etc.

Advantageously, the most recent character style that is selected by the user is stored in the internal memory 7 of the central unit 5, which memory is non-volatile so that each time the electronic book 1 is switched on, the document is displayed on the screen with the pagination that corresponds to the latest character style to be selected by the user.

It should be observed that the page break and illustration markers can be determined either entirely by the publisher of the document, or in part in automatic manner: under such circumstances, starting from pagination performed by the publisher for a single character style, a computer program automatically determines the pagination corresponding to each group of

character style, applying predetermined presentation criteria, after which the publisher can optionally refine the automatic pagination.

Naturally, the invention is not limited to the particular embodiment described above.

In particular:

- the electronic document display appliance need not be in the form of a portable housing with a simplified keypad as shown in Figure 1, but could be in the form of a conventional microcomputer, portable or otherwise;

- the various display configurations corresponding to the pagination markers positioned in advance in the document need not correspond to character style groups, but to screen characteristics specific to the display screen 3, in particular the size or the resolution of the screen. Under such circumstances, the pagination markers which are used for paginating the document on the screen are those having an identity code that corresponds to a previously stored identity code representative of the characteristics of the display screen 3; and

- the pagination markers could correspond both to character style groups and to screen characteristics, in which case the pagination markers used for paginating the document on the screen are those which correspond to the character style selected by the user taken in combination with the characteristics of the display screen 3.

This latter mode of operation will be better understood from a particular example.

In this particular example, each document is adapted to be presented:

- on a plurality of electronic display appliances, e.g. comprising standard screens of 6" size, 8" size, or 10" size; and

- while using one or other of the following groups of character fonts:

- group 1: Times New Roman 10 or Arial 9;
- group 2: Times New Roman 14 or Arial 13;
- group 3: Times New Roman 18 or Arial 16;
- group 4: Times New Roman 24 or Arial 22.

As explained above, the fonts belonging to a given group of character fonts corresponds to characters of similar size when displayed on the screen, and thus to the text being paginated in the same way when displayed on the screen, each page as determined by this pagination being adapted to be visible in full on the screen of the document display appliance, possibly after a small amount of scaling, as explained above.

The following table summarizes the various possible combinations of screen size and of character font groups.

Character font group	6"	8"	10"
Group 1: Times New Roman 10 or Arial 9	C3	C2	C1
Group 2: Times New Roman 14 or Arial 13	C4	C3	C2
Group 3: Times New Roman 18 or Arial 16	C5	C4	C3
Group 4: Times New Roman 24 or Arial 22	C6	C5	C4

As shown in the above table, each combination of screen size and character font group corresponds to a code taken from the range C1 to C6.

As explained above, the digital document contains pagination markers each comprising one of the above-mentioned identity codes C1-C6, these pagination markers comprising in particular page break markers which are adapted so that each page they define can be displayed in

full on the screen with any of the character fonts that correspond to the identity code C1-C6.

It will be observed that a given identity code C1-C6, and thus a given pagination marker, can correspond to several combinations of screen size and character font group. For example, in the above table, pagination markers corresponding to identity code C3 can be used simultaneously for the Times New Roman 14 font with an 8" screen, and also for the Arial 9 font which is of smaller size in combination with a smaller 6" screen.

The first time the digital document is loaded into the electronic display appliance, the software for displaying the document, which may have been previously loaded into the memory of the electronic appliance or which may be loaded simultaneously with the document for display, begins by determining the size of the screen of the display appliance as a function of a first identity code stored in the display appliance and representative of the screen size of the appliance.

Then, on first loading of the digital document in the display appliance, the document or an associated data file can also contain at least a second identity code representative of a default character font.

The document display software then uses the identity code of the default font in combination with the identity code of the screen size of the display appliance to specify one of the above-mentioned codes C1-C6. This can be done, for example, by means of a look-up table similar to the table above, and contained in the same data file as the document to be displayed or in an external file.

Once the code has been determined, the display software seeks out the various pagination markers contained in the document to be displayed that also contain the determined identity code, and it presents the document on the screen using those pagination markers.

Thereafter, the user can also change the character font that is to be used, as explained above, in which case the document display software again selects an identity code C1-C6 corresponding to the combination of the screen size and the character font group to which the user selected character font belongs, and then presents the document on the screen using the pagination markers that correspond to the identity code C1-C6 as determined in this way.

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CLAIMS

1/ An electronic document display appliance comprising an electronic central unit (5) including a memory (7, 8) and connected to a display screen (3) and to a control interface (4), the memory (7, 9) of the central unit containing at least one document in digital form which is to be presented on the screen and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen,

the appliance **being characterized in that** the document contains pagination markers that are not visible on the screen, each marker comprising at least one identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes comprised in the various pagination markers corresponding to a plurality of display configurations, themselves corresponding to a plurality of paginations on the screen;

in that the memory (7, 9) contains at least one identity code corresponding to an active display configuration with which the document is to be presented on the screen; and

in that the electronic central unit (5) is adapted to paginate the document using the pagination markers which correspond to the active display configuration and to present the document on the screen in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of said pages appears in full on the screen

when it is displayed with the active display configuration.

2/ An appliance according to claim 1, in which the memory (7, 9) contains characteristic data defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface (4) being adapted to enable a user to select one character style from the various possible styles, said character styles being subdivided into a plurality of groups of character styles, each comprising:

- either a single character style; or else
- a plurality of character styles of similar sizes;

the display configuration which corresponds to each pagination marker comprising at least one group of character styles, and the identity code of the active display configuration corresponding at least to an "active" group of character styles to which the character style selected by the user belongs.

3/ An appliance according to claim 2, in which each page break marker includes a code which represents a page number and, when said page break marker corresponds to the active group, the page number corresponds:

- either to the page situated immediately ahead of the page break marker;
- or else to the page situated immediately after the page break marker.

4/ An appliance according to claim 2 or claim 3, in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the

various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group.

5/ An appliance according to claim 2 or claim 3, in which at least one of the groups of character styles corresponding to the page break markers comprises a plurality of character styles of similar sizes, the page break markers which correspond to said group of character styles being positioned in the document so that the various pages of the document as defined by these page break markers are visible in full on the screen for all of the character styles belonging to said group of character styles when said group of character styles is the active group, and after the size of each page has been adapted by scaling with a scale factor that is specific to each character style, with the central unit being designed to adapt the size of each page while displaying said page on the screen by applying scaling to said page with said scale factor.

6/ An appliance according to claim 5, in which the central unit (5) is adapted to determine a scale factor automatically that is suitable for a page and a character style while said page is being displayed with the character style in question.

7/ An appliance according to any one of claims 2 to 6, in which, when the user selects a new character style after an initial page has already been displayed on the screen prior to repagination, the central unit (5) is adapted to display a new page on the screen (3), the new page comprising at least a portion of the initial page.

8/ An appliance according to claim 7, in which the central unit (5) is adapted to receive from the user, via the control interface (4), information for determining said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated.

9/ An appliance according to claim 7, in which said portion of the initial page which is to be included in the new page displayed on the screen after the document has been repaginated is a predetermined portion of said initial page.

10/ An appliance according to any one of claims 7 to 9, in which the central unit (5) is adapted to present at least one visible signal highlighting said portion of the initial page which is included in the new page displayed on the screen after the document has been repaginated.

11/ An appliance according to any one of claims 2 to 10, in which the central unit (5) is adapted to store the character style most recently selected by the user in a non-volatile internal memory (7).

12/ An appliance according to any one of claims 2 to 10, in which the central unit (5) is adapted to present indications on the screen (3) relating to an original pagination, corresponding to a predetermined character style, regardless of the character style selected by the user.

13/ An appliance according to any preceding claim, in which the document further comprises illustration markers corresponding to illustrations inserted in the text, said

illustration markers being invisible on the screen and each comprising:

- at least one identity code corresponding to a display configuration;
- at least one code representative of the corresponding illustration; and
- coded position and/or size information;

the electronic central unit (5) being adapted to present the document on the screen (3) with each illustration positioned and/or dimensioned on the corresponding page as a function of said coded position and/or size information contained in the illustration marker for said illustration that corresponds to the active configuration.

14/ An appliance according to claim 13, in which the illustration markers further comprise coded information concerning the visible presentation of illustrations, said coded information being representative of optical characteristics of each point forming part of the illustration.

15/ An appliance according to any preceding claim, constituting an electronic book which is in the form of a portable housing (2).

16/ An appliance according to any preceding claim, in which the identity code for each displayed configuration corresponds to at least one screen characteristic specific to the display screen (3).

17/ An appliance according to claim 16, in which said screen characteristic is a screen size.

18/ An appliance according to claim 16 or claim 17, in which the memory (7, 9) contains characteristics defining a plurality of possible character styles, corresponding to a plurality of paginations on the screen, the control interface (4) being adapted to enable a user to select a character style from the various possible styles, said character styles being grouped together in a plurality of character style groups, each comprising:

- either a single character style;
- or else a plurality of character styles of similar sizes;

each display configuration corresponding to a combination of at least one screen characteristic and at least one character style group,

and the identity code of the active display configuration corresponding to combining:

- the screen characteristic corresponding to the display screen of the appliance; and
- the character style group to which the character style selected by the user belongs.

19/ A data medium for an electronic document display appliance according to any preceding claim, the appliance comprising an interface (8) suitable for communicating with said data medium (9), said data medium storing in memory at least one document in digital form which is to be presented on the screen (3) of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations

on the screen, and said pagination markers including at least page break markers.

20/ A downloading method comprising at least one step consisting in downloading into the memory (7, 9) of an electronic document display appliance according to any one of claims 1 to 18, at least one document in digital form which is to be presented on the screen (3) and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a group of character styles, the pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

21/ Software comprising at least one data file loadable into the memory of a document display appliance according to any one of claims 1 to 18, said data file comprising a document in digital form which is to be presented on the screen (3) of the electronic appliance and which comprises alphanumeric characters, said document being constituted for the most part by information that is frozen, and said document containing pagination markers that are not visible on the screen, each comprising at least one identity code corresponding to a display configuration, said pagination markers corresponding to a plurality of display configurations which themselves correspond to a plurality of paginations on the screen, and said pagination markers including at least page break markers.

22/ A method of displaying a document stored in digital form by means of an electronic document display appliance according to any one of claims 1 to 18, the appliance comprising an electronic central unit (5) including a memory (7, 9) and connected to a display screen (3) and to a control interface (4), which document is to be presented on the screen and comprises alphanumeric characters, and said document being constituted for the most part by information that is frozen, said document containing pagination markers that are not visible on the screen, each comprising at least an identity code corresponding to a display configuration representative of the way in which the document is to be presented on the screen, the pagination markers including at least page break markers which subdivide the document into pages, and the identity codes taken by the various pagination markers corresponding to a plurality of display configurations themselves corresponding to a plurality of paginations on the screen, the method comprising the following steps:

a) determining the identity code of an active display configuration, with which the document is to be presented on the screen; and

b) paginating the document using the pagination markers having an identity code which corresponds to the identity code of the active display configuration and presenting the document on the screen (3) in said active display configuration with a page break for each page break marker corresponding to said active display configuration, the pages defined by the page breaks which correspond to the active display configuration being such that each of the pages is visible in full on the screen while it is being displayed with the active display configuration.

23/ A method according to claim 22, in which the various display configurations comprise a plurality of character styles grouped together in a plurality of character style groups, each group comprising at least one character style, step a) comprising the following substeps:

- selecting a character style;
- determining an identity code corresponding to the group of character styles to which the selected character style belongs; and
- storing said identity code in the memory (7, 9) as the identity code of the active display configuration.

24/ A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics, step a) comprising the following substeps:

- determining an identity code relating to the screen characteristic corresponding to the display screen (3) of the electronic document display appliance; and
- storing said identity code in the memory (7, 9) as the identity code of the active display configuration.

25/ A method according to claim 22, in which the various display configurations correspond to a plurality of screen characteristics and to a plurality of character styles grouped together in a plurality of character style groups each comprising at least one character style, step a) comprising the following substeps:

- determining a first identity code relating to the screen characteristic which corresponds to the display screen (3) of the electronic document display appliance;
- storing the identity code corresponding to said screen characteristic in the memory (7, 9);
- selecting a character style;

- determining a second identity code corresponding to the character style group to which the selected character style belongs;

- storing said second identity code in the memory (7, 9); and

- determining an identity code for the active display configuration that corresponds to said first and second identity codes, and storing it in the memory (7, 9).

AN ELECTRONIC APPLIANCE, A DATA MEDIUM, A DOWNLOADING METHOD, SOFTWARE, AND A METHOD FOR DISPLAYING DOCUMENTS

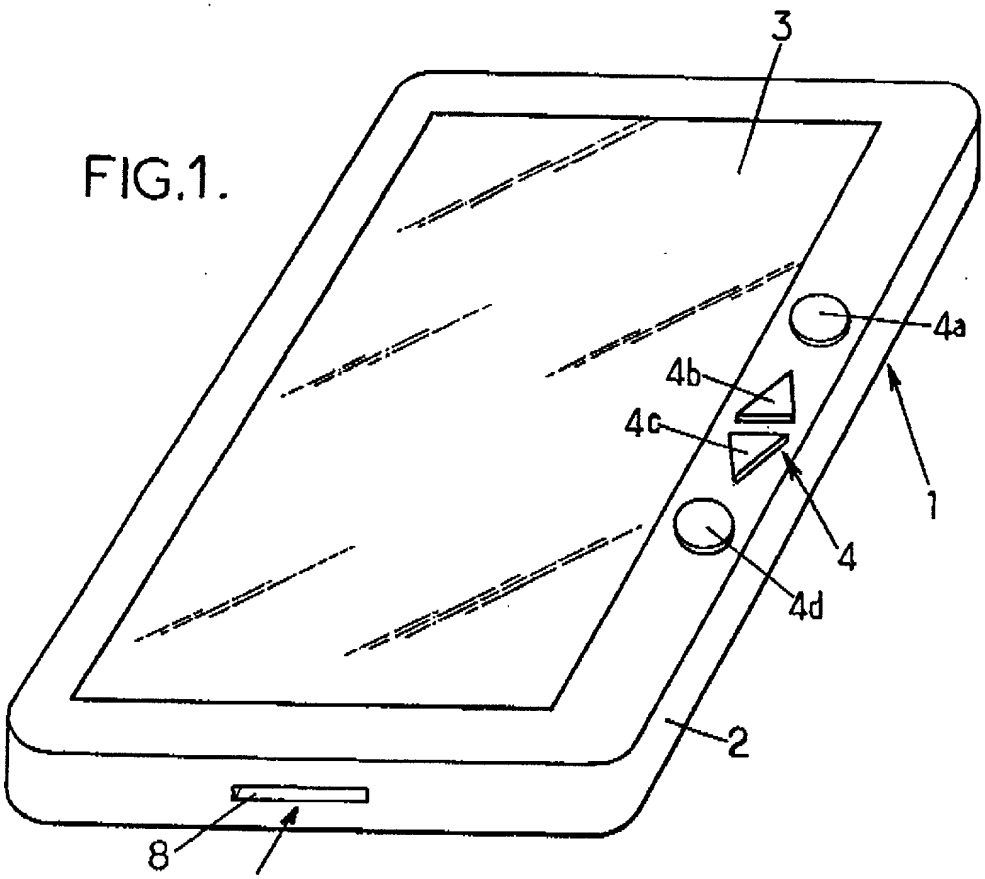
ABSTRACT

An electronic book (1) comprises an electronic central unit which includes a memory and which is connected to a display screen (3) and to a control interface (4). The memory of the central unit contains at least one document comprising alphanumeric characters and prepositioned page break markers which serve to paginate the document as a function of the characteristics of the screen or as a function of a character style selected by the user.

Translation of the title and the abstract as they were when originally filed by the Applicant. No account has been taken of any changes that may have been made subsequently by the PCT Authorities acting ex officio, e.g. under PCT Rules 37.2, 38.2, and/or 48.3.

10/030869

FIG.1.



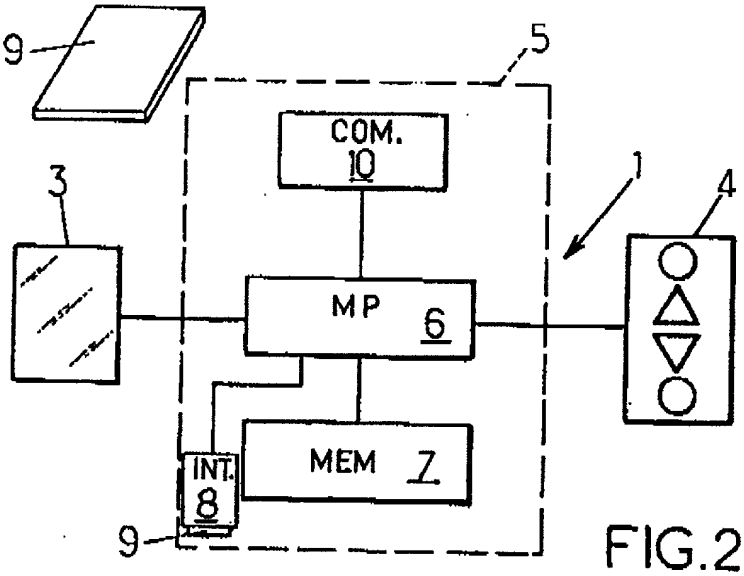


FIG.2.

Atty. Docket No:

DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled " AN ELECTRONIC APPLIANCE, A DATA MEDIUM, A DOWNLOADING METHOD, SOFTWARE, AND A METHOD FOR DISPLAYING DOCUMENTS ",

the specification of which (check one): ☒ is attached hereto; ☐ was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable); ☐ was filed as PCT International Application No. _____ on _____ and was amended under Article 19 on _____ (if applicable). I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose to the Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

(Application Serial Number)	(Country)	(Day/Month/Year Filed)	Priority Claimed Yes	No
99 04957	FRANCE	20/04/1999	☒	☐
99 08943	FRANCE	09/07/1999	☒	☐

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

(Application Serial Number)	(Day/Month/Year Filed)

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56 which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

(Application Serial Number)	(Day/Month/Year Filed)	(Status-Patented, Pending or Abandoned)
PCT/FR00/00989	17/04/2000	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: I hereby appoint William E. McCracken (Reg. No. 30,195) as my attorney, with full powers of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

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State or Country	**State or Country**
Date :	**Signature** :